

REMARKS

I. Status of the Claims

Claims 1-3, 5, 6, and 9-23 are pending in this application. Claims 4 and 7-8 have been cancelled without prejudice or disclaimer. Claims 1-3, 5, 6, and 9-23 have been rejected under 35 U.S.C. 103(a).

II. The Rejection of Claims 1-3, 5-6, and 9-23 Under 35 U.S.C. 103(a) Over Ishimura in View of Yamada Should be Withdrawn.

The rejection of claims 1-3, 5-6, and 9-23 under 35 U.S.C. 103(a) over Ishimura (EP 0304503) in view of Yamada (JP 2001156114)¹ should be withdrawn because Yamada does not provide an “epoxy resin in which a total amount of chlorines in the epoxy resin is not more than 400 ppm”. See Claim 1. The Examiner recognizes that Ishimura does not disclose the “chlorine content in the composition.” *Office Action* at 3. However, Examiner is mistaken as to the contents of the Yamada disclosure. Yamada only discloses chloride ion concentrations. Yamada’s chloride ions are different from the chlorines in the epoxy resin recited in claim 1. Accordingly, a person of ordinary skill in the art at the time of Applicants’ invention could not have arrived at Applicants’ claims by combining the Ishimura disclosure with the Yamada disclosure. Applicants’ respectfully request that the Examiner withdraw the rejection of claims 1-3, 5-6, and 9-23 under 35 U.S.C. 103(a).

¹ The Examiner has referred to the English language equivalent of the Yamada reference (U.S. Patent No. 6,512,184) throughout the Office Action. See *Office Action* at 2. For consistency, Applicants refer to U.S. Patent No. 6,512,184 as “Yamada”.

The factors set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), should be applied to establish a background for assessing obviousness under 35 U.S.C. 103. These factors are as follows:

1. Determining the scope and contents of the prior art;
2. Ascertaining the differences between the prior art and the claims at issue;
3. Resolving the level of ordinary skill in the pertinent art; and
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

See M.P.E.P. § 2141. The Supreme Court has recently affirmed that the *Graham* test should guide an inquiry under § 103 and should be used to determine the obviousness of each claim individually. See *KSR Intern Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734. The Court in *KSR* also reiterated that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinnings to support the legal conclusion of obviousness.” *Id.* at 1741 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The Examiner has identified Ishimura as the base reference over which Applicants' claims have been rejected. The Examiner has correctly identified one difference between the Ishimura disclosure and Applicants' broadest claim 1. The Ishimura disclosure “does not disclose that the chlorine content in the composition is not more than 400 ppm.” *Office Action* at 3. The Examiner contends that “[a]t the time of the invention a person having ordinary skill in the art would have found it obvious to combine the teachings of the low chloride content of Yamada et al. with the composition of Ishimura et al.....” *Id.* However, the Examiner has misinterpreted the Yamada

disclosure and consequently erred in concluding that Yamada provides for the “total amount of chlorines” recited in claim 1.

Yamada discloses an epoxy resin composition with a particular amount of contaminant chloride ions. See, e.g., Yamada at col. 5, lines 40-45 (“... it is preferable that the contaminant ion content [of the connecting material] is 100 ppm or less....”)(emphasis added). These chloride ions are different from the chlorines in the epoxy resin recited in claim 1. The chloride ions disclosed in Yamada are a species of chlorine compounds generally. A chloride ion is a negatively charged anion, represented by the elemental symbol for chlorine with a negative charge, indicating that the single chlorine atom is negatively charged: Cl⁻. To balance this negative charge, each chloride ion forms an ionic bond to a cation, forming a salt. Examples of such salts include sodium chloride (NaCl), potassium chloride (KCl), and magnesium chloride (MgCl₂). Such ionic compounds are detectable by techniques that are specific to charged compounds, such as ion chromatography, which is disclosed as a means for detecting the chlorides in the Yamada reference. *Id.* at line 45 (“The contaminant ion content can be detected by ion chromatography”). In addition to ionic salt compounds, chlorine atoms may exist in non-ionic molecules. For example organic molecules such as those forming an epoxy resin may include covalently bonded chlorine atoms. Yamada is silent regarding the total amount of chlorines in the epoxy resin because any chlorine atoms in the epoxy resin would be covalently bonded and therefore non-ionic. The Yamada disclosure only pertains to chloride ions.

Applicants' claim 1 recites "an epoxy resin in which a total amount of chlorines in the epoxy resin is not more than 400 ppm...." Applicants' specification indicates that the chlorines in the epoxy resin include "organic chlorines" (e.g., chloro-epoxy compounds) and "inorganic chlorines" (e.g., chloride salts). *Specification* at page 13, line 28- page 14, line 3. Accordingly, the "chlorines" element recited in claim 1 encompasses both the chloride ions that the Examiner points to in the Yamada disclosure and also any other type of non-ionic chloride, such as those in chloride comprising epoxy resins.

Even if a person of ordinary skill in the art would have combined Ishimura with Yamada--and Applicants do not believe that this is the case--the combination would not have provided Applicants' claims. If the appropriate motivation existed, combining Yamada with Ishimura could potentially lead to the epoxy resin of Ishimura with the reduced contaminant chloride ion concentration of Yamada. This combination would still fail to embody each of the features of Applicants' claim 1 at least because it would fail to provide for an overall reduction in chlorines. For example, Ishimura modified by Yamada could still comprise chlorine concentrations exceeding 400 ppm as long as such chlorines were not chloride ions. To the contrary, Applicants' claims limit the overall chlorine concentration in the epoxy resin. The Examiner has not presented a disclosure that identifies this element in any context. Given this general deficiency, the Examiner could not possibly meet the burden of showing why a person of ordinary skill in the art would have chosen to modify the Ishimura disclosure by including an element that was not even identified in isolation. Accordingly, a person of ordinary skill in the art

at the time of Applicants' invention could not have arrived at each of the features of Applicants' claim 1 by combining the Ishimura disclosure with the Yamada disclosure. Claims 2-3, 5-6, and 9-23 depend, either directly or indirectly from claim 1 and are not obvious for at least the reasons pertaining to claim 1. Applicants' respectfully request that the Examiner withdraw the rejection of claims 1-3, 5-6, and 9-23 under 35 U.S.C. 103(a).

III. Conclusion.

Applicants respectfully request that the Examiner withdraw the rejection of claims 1-3, 5-6, and 9-23 under 35 U.S.C. 103(a) over Ishimura in view of Yamada. These rejections should be withdrawn because Yamada does not provide an "epoxy resin in which a total amount of chlorines in the epoxy resin is not more than 400 ppm". See Claim 1. Ishimura does not disclose the "chlorine content in the composition" and Yamada only discloses particular chloride ion concentrations. *Office Action* at 3. Accordingly, a person of ordinary skill in the art at the time of Applicants' invention could not have arrived at Applicants' claims by combining the Ishimura disclosure with the Yamada disclosure.

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Respectfully submitted,

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